EXHIBIT 1

The New York Times | https://www.nytimes.com/2019/05/09/opinion/sunday/chris-hughes-facebook-zuckerberg.html

Opinion

It's Time to Break Up Facebook

By Chris Hughes

May 9, 2019

The last time I saw Mark Zuckerberg was in the summer of 2017, several months before the Cambridge Analytica scandal broke. We met at Facebook's Menlo Park, Calif., office and drove to his house, in a quiet, leafy neighborhood. We spent an hour or two together while his toddler daughter cruised around. We talked politics mostly, a little about Facebook, a bit about our families. When the shadows grew long, I had to head out. I hugged his wife, Priscilla, and said goodbye to Mark.

Since then, Mark's personal reputation and the reputation of Facebook have taken a nose-dive. The company's mistakes — the sloppy privacy practices that dropped tens of millions of users' data into a political consulting firm's lap; the slow response to Russian agents, violent rhetoric and fake news; and the unbounded drive to capture ever more of our time and attention — dominate the headlines. It's been 15 years since I co-founded Facebook at Harvard, and I haven't worked at the company in a decade. But I feel a sense of anger and responsibility.

Watch: A founder of Facebook says it should be broken up.

Mark is still the same person I watched hug his parents as they left our dorm's common room at the beginning of our sophomore year. He is the same person who procrastinated studying for tests, fell in love with his future wife while in line for the bathroom at a party and slept on a mattress on the floor in a small apartment years after he could have afforded much more. In other words, he's human. But it's his very humanity that makes his unchecked power so problematic.

Mark's influence is staggering, far beyond that of anyone else in the private sector or in government. He controls three core communications platforms — Facebook, Instagram and WhatsApp — that billions of people use every day. Facebook's board works more like an advisory committee than an overseer, because Mark controls around 60 percent of voting shares. Mark alone can decide how to configure Facebook's algorithms to determine what people see in their News Feeds, what privacy settings they can use and even which messages get delivered. He sets the rules for how to distinguish violent and incendiary speech from the merely offensive, and he can choose to shut down a competitor by acquiring, blocking or copying it.

Mark is a good, kind person. But I'm angry that his focus on growth led him to sacrifice security and civility for clicks. I'm disappointed in myself and the early Facebook team for not thinking more about how the News Feed algorithm could change our culture, influence elections and empower nationalist leaders. And I'm worried that Mark has surrounded himself with a team that reinforces his beliefs instead of challenging them.

The government must hold Mark accountable. For too long, lawmakers have marveled at Facebook's explosive growth and overlooked their responsibility to ensure that Americans are protected and markets are competitive. Any day now, the Federal Trade Commission is expected to impose a $5 billion fine on the company, but that is not enough; nor is Facebook's offer to appoint some kind of privacy czar. After Mark's congressional testimony last year, there should have been calls for him to truly reckon with his mistakes. Instead the legislators who questioned him were derided as too old and out of touch to understand how tech works. That's the impression Mark wanted Americans

'Don't be too proud to copy.'"

(There is little regulators can do about this tactic: Snapchat patented its "ephemeral message galleries," but copyright law does not extend to the abstract concept itself.)

> Would-be competitors can't raise the money to take on Facebook.

As a result of all this, would-be competitors can't raise the money to take on Facebook. Investors realize that if a company gets traction, Facebook will copy its innovations, shut it down or acquire it for a relatively modest sum. So despite an extended economic expansion, increasing interest in high-tech start-ups, an explosion of venture capital and growing public distaste for Facebook, no major social networking company has been founded since the fall of 2011.

As markets become more concentrated, the number of new start-up businesses declines. This holds true in other high-tech areas dominated by single companies, like search (controlled by Google) and e-commerce (taken over by Amazon). Meanwhile, there has been plenty of innovation in areas where there is no monopolistic domination, such as in workplace productivity (Slack, Trello, Asana), urban transportation (Lyft, Uber, Lime, Bird) and cryptocurrency exchanges (Ripple, Coinbase, Circle).

I don't blame Mark for his quest for domination. He has demonstrated nothing more nefarious than the virtuous hustle of a talented entrepreneur. Yet he has created a leviathan that crowds out entrepreneurship and restricts consumer choice. It's on our government to ensure that we never lose the magic of the invisible hand. How did we allow this to happen?

Since the 1970s, courts have become increasingly hesitant to break up companies or block mergers unless consumers are paying inflated prices that would be lower in a competitive market. But a narrow reliance on whether or not consumers have experienced price gouging fails to take into account the full cost of market domination. It doesn't recognize that we also want markets to be competitive to encourage innovation and to hold power in check. And it is out of step with the history of antitrust law. Two of the last major antitrust suits, against AT&T and IBM in the 1980s, were grounded in the argument that they had used their size to stifle innovation and crush competition.

As the Columbia law professor Tim Wu writes, "It is a disservice to the laws and their intent to retain such a laserlike focus on price effects as the measure of all that antitrust was meant to do."

Facebook is the perfect case on which to reverse course, precisely because Facebook makes its money from targeted advertising, meaning users do not pay to use the service. But it is not actually free, and it certainly isn't harmless.

> We pay for Facebook with our data and our attention, and by either measure it doesn't come cheap.

Facebook's business model is built on capturing as much of our attention as possible to encourage people to create and share more information about who they are and who they want to be. We pay for Facebook with our data and our attention, and by either measure it doesn't come cheap.

I was on the original News Feed team (my name is on the patent), and that product now gets billions of hours of attention and pulls in unknowable amounts of data each year. The average Facebook user spends an hour a day on the platform; Instagram users spend 53 minutes a day scrolling through pictures and videos. They create immense amounts of data — not just likes and dislikes, but how many seconds they watch a particular video — that Facebook uses to refine its targeted advertising. Facebook also collects data from partner companies and apps, without most users knowing about it, according to testing by The Wall Street Journal.

Some days, lying on the floor next to my 1-year-old son as he plays with his dinosaurs, I catch myself scrolling through Instagram, waiting to see if the next image will be more beautiful than the last. What am I doing? I know it's not good for me, or for my son, and yet I do it anyway.

The choice is mine, but it doesn't feel like a choice. Facebook seeps into every corner of our lives to capture as much of our attention and data as possible and, without any alternative, we make the trade.

EXHIBIT 2

CHICAGO BOOTH | **Stigler Center**
for the Study of the Economy and the State

Stigler Committee on Digital Platforms

Final Report

2019

CHICAGO BOOTH | **Stigler Center**
for the Study of the Economy and the State

Stigler Committee on Digital Platforms

Organization:

- **Luigi Zingales**, Robert C. McCormack Distinguished Service Professor of Entrepreneurship and Finance, University of Chicago Booth School of Business. Director, the George J. Stigler Center for the Study of the Economy and the State
- **Guy Rolnik,** Clinical Associate Professor of Strategic Management, University of Chicago Booth School of Business
- **Filippo Maria Lancieri,** Fellow, George J. Stigler Center for the Study of the Economy and the State. JSD Candidate, University of Chicago Law School

Subcommittee on Market Structure and Antitrust

- **Chair: <u>Fiona Scott Morton</u>**, Theodore Nierenberg Professor of Economics, Yale University School of Management
- **<u>Pascal Bouvier</u>**, Managing Partner and co-founder, MiddleGame Ventures
- **<u>Ariel Ezrachi</u>**, Slaughter and May Professor of Competition Law and Fellow of Pembroke College, University of Oxford
- **<u>Bruno Jullien</u>**, Research Faculty, Toulouse School of Economics
- **<u>Roberta Katz</u>**, Senior Research Scholar, Stanford University
- **<u>Gene Kimmelman</u>**, President and CEO, Public Knowledge
- **<u>Douglas Melamed</u>**, Professor of the Practice of Law, Stanford Law School
- **<u>Jamie Morgenstern</u>**, Assistant Professor, School of Computer Science, Georgia Tech

Subcommittee on the News Media Industry

- **Chair: <u>Guy Rolnik</u>**, Clinical Associate Professor of Strategic Management, University of Chicago Booth School of Business
- **<u>Julia Cage</u>**, Assistant Professor of Economics, Sciences Po Paris
- **<u>Joshua Gans</u>**, Professor of Strategic Management and Jeffrey S. Skoll Chair of Technical Innovation and Entrepreneurship, Rotman School of Management, University of Toronto
- **<u>Ellen Goodman</u>**, Professor of Law, Rutgers University
- **<u>Brian Knight</u>**, Professor of Economics, Brown University
- **<u>Andrea Prat</u>**, Richard Paul Richman Professor of Business and Professor of Economics, Columbia University
- **<u>Anya Schiffrin</u>**, Director of the Technology, Media, and Communications specialization, School of International and Public Affairs, Columbia University

CHICAGO BOOTH | **Stigler Center**
for the Study of the Economy and the State

Subcommittee on Privacy and Data Protection

- **Chair: <u>Lior Strahilevitz</u>**, Sidley Austin Professor of Law, University of Chicago
- **<u>Lorrie Cranor</u>**, Director and Bosch Distinguished Professor in Security and Privacy Technologies, CyLab Privacy and Security Institute; FORE Systems Professor, Computer Science and Engineering & Public Policy, Carnegie Mellon University
- **<u>Florencia Marotta-Wurgler</u>**, Professor of Law, New York University School of Law
- **<u>Jonathan Mayer</u>**, Assistant Professor of Computer Science and Public Affairs, Princeton University
- **<u>Paul Ohm</u>**, Professor of Law and Associate Dean for Academic Affairs, Georgetown University Law Center
- **<u>Katherine Strandburg</u>**, Alfred B. Engelberg Professor of Law, New York University School of Law
- **<u>Blase Ur</u>**, Neubauer Family Assistant Professor of Computer Sciences, University of Chicago

Subcommittee on Politics

- **Chair: <u>Nolan McCarty</u>**, Susan Dod Brown Professor of Politics and Public Affairs, Princeton University
- **<u>Rana Foroohar</u>**, Global Business Columnist and Associate Editor, *Financial Times*
- **<u>Andrew Guess</u>**, Assistant Professor of Politics and Public Affairs, Princeton University
- **<u>David Lazer</u>**, Professor of Political Science, Northeastern University
- **<u>Alexandra Siegel</u>**, Postdoctoral Fellow, Stanford University
- **<u>Nick Stephanopoulos</u>**, Professor of Law and Herbert and Marjorie Fried Research Scholar, University of Chicago
- **<u>Joshua Tucker</u>**, Professor of Politics, New York University

CHICAGO BOOTH | Stigler Center
for the Study of the Economy and the State

ACKNOWLEDGMENTS:

Suggested Citation:

Stigler Committee on Digital Platforms, Final Report, September 2019, available at https://research.chicagobooth.edu/stigler/media/news/committee-on-digital-platforms-final-report

CHICAGO BOOTH | Stigler Center
for the Study of the Economy and the State

Table of Contents

CHICAGO BOOTH | **Stigler Center**
for the Study of the Economy and the State

Stigler Committee on Digital Platforms: *Policy Brief*

Luigi Zingales[1]

Filippo Maria Lancieri[2]

September 2019

I.   INTRODUCTION

One of the key defining factors of the past decade is the rise of Digital Platforms (DPs), such as Google, Facebook, Amazon, Apple. As more and more of our economy and society moved online, these companies ascended from non-existent or nearly bankrupt in the early 2000s to join Microsoft as global behemoths, exceeding (as of August 2019) more than 4 trillion dollars in market capitalization.

This meteoric rise is not surprising. These companies invented new products and services that revolutionized the way we work, study, travel, communicate, shop, and even date. In the process, they created trillions of dollars in consumer surplus. Nonetheless, recognizing the enormous gains brought about by these companies to date does not equate to saying that: (i) these gains will endure, especially if markets are no longer competitive; and (ii) there is no room for welfare gains by reducing some of the downsides brought about by them. Cars dramatically improved our way of life. Nonetheless, they also introduced new risks which demanded new laws and regulations. Traffic lights and roundabouts have not destroyed the benefits of cars, but they have dramatically reduced their negative impact on society.

Whether it is the novelty of their product or the consumer surplus they created (or both), so far these companies have largely avoided any regulation. In the past few years, however, as the number of scandals involving DPs increased, concerns about their unchecked power started to emerge. These concerns were not limited to economic aspects (are these companies moving to prevent any competition?) or privacy (are we in an age of surveillance capitalism?). They include the impact DPs have on our political arena and democratic values: Are they helping promote hate and/or are they a threat to the working of our democratic system?

As these important discussions multiplied, so did the proposals to intervene. Abroad, these proposals were the result of government-appointed committees—from the EU to the UK or Australia. In the United States—where no government committee was formed—the proposals were reactions to the perceived threat posed by DPs, with little to no analysis of the underlying root problems, let alone a link between market failures and remedies.

To fill this void, the George J. Stigler Center at the University of Chicago Booth School of Business decided to organize an independent Committee on Digital Platforms. The Committee brought together a group of more than 30 highly qualified, independent academics and

---

[1] Robert C. McCormack Distinguished Service Professor of Entrepreneurship and Finance, and Charles M. Harper Faculty Fellow, University of Chicago Booth School of Business. Director, George J. Stigler Center for the Study of the Economy and the State.

[2] Fellow, George J. Stigler Center for the Study of the Economy and the State. JSD Candidate, University of Chicago Law School.

CHICAGO BOOTH | Stigler Center
for the Study of the Economy and the State

policymakers[3] from different disciplines to think holistically about how DPs impact: (i) the economy, (ii) privacy and data security, (iii) the news media industry, (iv) the functioning of our democracy.

For over a year, the members of each subcommittee dedicated a significant amount of time to develop a set of cohesive, independent studies on how DPs impact modern society. Draft versions of each subcommittee's white paper were featured at the Stigler Center's 2019 Antitrust and Competition Conference, which brought together more than 130 highly regarded academics and policy experts to discuss these topics.[4] At the conference, each white paper received detailed feedback by two independent commentators representing different points of view, along with more general feedback from the audience. Overall, the studies presented herein represent the most comprehensive independent analysis of Digital Platforms to date.

This *Policy Brief*, aimed at a non-specialized audience, summarizes the main concerns identified by these studies and provides a viable path forward to address the identified concerns.[5] It tries to do so in the least intrusive way possible. Section II presents the novel concerns raised by DPs. Section III describes the various policy solutions. Section IV concludes.

II.   SOURCES OF CONCERNS

The term "Digital Platform" lacks a consistent definition—different companies may be characterized as a platform in different environments. For example, Google, Facebook, Amazon, Apple, and Microsoft raise different concerns regarding how their "bottleneck power" impacts the markets in which they operate.[6] Considerations on market power involve all five companies mentioned above. By contrast, considerations about the news media or democracy are more specific to companies such as Google and Facebook and—to a lesser extent—Twitter. For this reason, the focus of our analysis in this Brief will be primarily Google and Facebook.

II.1 MARKET STRUCTURE/ANTITRUST

Digital Platforms tend to monopolies: The markets where DPs operate exhibit several economic features that, while not novel per se, appear together for the first time and push these markets towards monopolization by a single company. These features are: i) strong network effects (the more people use a product, the more appealing this product becomes for other users); ii) strong economies of scale and scope (the cost of producing more or of expanding in other sectors decreases with company's size); iii) marginal costs close to zero (the cost of servicing another consumer is close to zero); (iv) high and increasing returns to the use of data (the more

---

[3] See https://research.chicagobooth.edu/stigler/events/single-events/antitrust-competition-conference/digital-platforms-committee.

[4] See the agenda for the 2019 ANTITRUST AND COMPETITION CONFERENCE - DIGITAL PLATFORMS, MARKETS, AND DEMOCRACY: A PATH FORWARD, available at https://research.chicagobooth.edu/stigler/events/single-events/antitrust-competition-conference

[5] For example, most of our reference footnotes are to accessible articles in the main press. The reports all have multiple technical references for more specialized audiences.

[6] Or their power to funnel user attention. Bottleneck power arises when "consumers primarily single-home and rely upon a single service provider." For example, most sites depend on Google to receive traffic—hence saying that Google is a bottleneck in internet traffic.

CHICAGO BOOTH | **Stigler Center**
for the Study of the Economy and the State

data you control, the better your product); and v) low distribution costs that allow for a global reach. This confluence of features means that these markets are prone to tipping; that is, they reach a point where the market will naturally tend towards a single, very dominant player (also known as "winner takes all markets"). An entrant will most likely be unable to overcome the barriers to entry represented by scale economies and data control, as they are difficult to achieve in a quick, cost-effective manner.

When free is not necessarily good for consumers: DPs defend themselves by saying that, since most consumers do not pay for their services, how can they be hurt? This statement is incorrect in many ways. First, there is nothing special about a zero price—if the business is so successful, consumers could be charged a negative price to use Google (think of miles awarded for credit card use).[7] Second, house buyers do not pay for their real estate broker out of their pocket, but that does not mean they do not pay for the service nor that they cannot be hurt by high real estate brokers' commissions. Two-sided platforms, like real estate brokers, often charge more on one side to subsidize the other. In equilibrium, a higher real estate fee will be reflected in higher house prices, which will hurt buyers. The same is true for DPs like Facebook and Google. Second, only the monetary price consumers pay is zero. Consumers pay in kind, by transferring their data. Finally, market power may manifest itself through lower quality, lower privacy protection, less creation of new business/entry, less variety of political viewpoints, and, importantly, less investments in innovation. For example, a recent paper demonstrates how Facebook became much more aggressive in data collection after it faced less competition from MySpace.[8]

Market power in ads can lead to monopolization in other markets: DPs can increase the prices paid by advertisers, many of them small businesses, diverting more and more income to platforms. Have you ever noticed how Amazon buys the ads for the search "Amazon" on Google despite it being the first organic result? This shows how much power Google has even over gigantic corporations. Through their power in the ads market, DPs can also block entry of potential competitors. For example, Facebook banned cryptocurrency ads on its platform just a year before announcing its entry in the crypto space with Libra.

Consumer harm is greatest when market power is combined with behavioral biases: Consumers tend to stick with default options. If forced to choose, they opt for the most salient alternative. Highlighting an option in red or putting it in the first position nudges consumers in that direction. Google recognizes the power of defaults and pays Apple an estimated 12 billion dollars per year to be the default search engine on the iPhone.[9] Manipulations are common even in brick-and-mortar shops, yet they are especially harmful when i) the manipulator knows a lot about the potential customers; and ii) there are limited (or no) alternatives, as is the case for most DPs. Framing, nudges, and default options can direct consumers to choices they regret. In addition, there is increasing evidence that many online products are designed to be as addictive

---

[7] Indeed, Microsoft Rewards pays for searches using Bing, and a very small search engine plants trees the more someone searches. The fact that both companies cannot obtain market share from Google even in this context shows how high entry barriers are in search markets. See https://www.microsoft.com/en-us/rewards and https://info.ecosia.org/what.

[8] See Dina Srinivasan, "The Antitrust Case Against Facebook: A Monopolist's Journey Towards Pervasive Surveillance in Spite of Consumers' Preference for Privacy," *Berkeley Business Law Journal* 16, no. 1 (2019): 39.

[9] See https://fortune.com/2018/09/29/google-apple-safari-search-engine/.

CHICAGO BOOTH | **Stigler Center**
for the Study of the Economy and the State

Digital platforms are characterized by free services. "Free" is not a special zone where economics or antitrust do not apply. Rather, a free good is one where the seller has chosen to set a monetary price of zero and may set other, non-monetary, conditions or duties. It is possible that a digital market has an equilibrium price that is negative; in other words, because of the value of target advertising, the consumer's data is so valuable that the platform would pay for it. But the difficulty of making micropayments might lead a platform to mark up this negative competitive price to zero. As a result, barter is a common way in which consumers pay for digital services. They barter their privacy and information about what restaurants they would like to eat in and what goods they would like to buy in exchange for digital services. However, in principle, that information has a market price that can be analyzed.

B. Harms

Market power, consumer biases and an ad-supported platform model can generate significant consumer harms. First, market power in advertising markets will result in markups paid by advertisers. Secondly, while behavioral economists have studied consumer biases and firm responses in offline markets, these are swamped by what digital businesses can learn by using high-dimensional, large datasets to explore every nook and cranny of consumers' many behavioral shortcomings and biases in real time. Framing, nudges, and defaults can direct a consumer to the choice that is most profitable for the platform. A platform can analyze a user's data in real time to determine when she is in an emotional "hot state" and then offer targeted sales. These tactics reduce the quality of the zero-price content the user experiences on the platform.

In addition to *de novo* entry, platforms fear disintermediation by a partner or complement. If a platform's partner is able to directly access and serve the platform's customers, it might take them off the platform entirely, reducing the platform's profit. A platform that has total control of demand due to control over framing of consumer choices, policies for complements, and technical standards can steer customers to content and complements of most benefit to it. The most privately beneficial content might be owned by the platform itself rather than provided by independent firms that could extract rent or even challenge the platform's market power in the future. To the extent that consumers single-home, they may not be aware of such steering, or may not have competitive alternatives to which they can turn if they are aware.

Today's platforms understand that in some settings they can obtain higher margins if they either, make all of the necessary complements themselves, or, position themselves as a mandatory bottleneck between partners and customers. In particular, digital platforms are often very careful to maintain complete control over the user relationship so that they do not face any threat of disintermediation from a complement. These technological and policy choices can be used to reduce the possibility of successful entry by direct competitor. Other strategies such as

EXHIBIT 3

WORLD

Facebook will pay you to watch ads during game play

May 6, 2011, 9:44 AM PDT

By Athima Chansanchai

—— Animal Party, one of many Facebook games where credits are bought with real money

If it pains you to watch ads while you're online, would some money bring some relief?

Apparently, Facebook thinks it would, as it has a plan to reward gamers on its site with credits if they sit through video ads.

Inside Facebook's Josh Constine reports that an expansion of Facebook's partnership with TrialPay – which has a platform called DealSpot that aligns ads with transactions – means gamers who don't mind the passive intake of advertising will receive Facebook Credits for their time. Forget pay for play; this is pay for sit-there-and-let-subliminal-messaging-take-over.

As of July 1, all games on Facebook that require payments will have to use Facebook Credits as virtual currency, which must be bought using real money (credit cards, PayPal and mobile payments are accepted). So, as you rack up those gems, coins, nacho machines, crops and other virtual goods, be mindful of those Facebook Credits, because it'll be the Euro of the social network gaming world soon enough.

Gamers can also take a more pro-active approach to earning credits by clicking on the videos before they're prompted, which will be in the sidebar.

Constine reports that "Facebook says the goal of the expanded partnership is to help game developers monetize a higher percentage of their users by educating users about how to earn and spend Credits and getting more of them to carry a balance of the virtual currency."

He does add that there is a caveat to the free flow of Facebook Credits:

While over 350 games now use Credits, only those that use Credits as their premium in-game currency can use this version of DealSpot. As on July 1st, 2011, developers that don't work with Facebook's approved offer providers (TrialPay is currently the only one) can only serve offers that don't require identifiable information, such as videos, and they can only reward users with virtual goods, not virtual currency or Credits.

Recommended
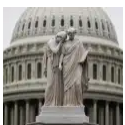
GOVERNMENT SHUTDOWN
Graphics: How the federal workforce compares to the nation's

GUNS IN AMERICA
Las Vegas police arrest person in connection with Tupac Shakur murder investigation

There's big money to be made in the make-believe currency, since very real money fuels it. Constine reports:

Initial tests of DealSpot prior to this expansion which included paid purchase offers showed that DealSpot earned nearly twice as much revenue for developers than their offer wall, which only gives users the option to earn Credits once they're already trying to purchase a virtual good. This shows that users that typically weren't interested in making purchases can become paying customers if given the option to earn Credits during normal, free gameplay.

Business Insider sees this as an opportunity for game developers to make extra (real) bucks by sticking ads in their games, and it sounds like pretty good incentive to us too. And for TrialPay, which has landed a coup with this deal in being the primary conduit for these branded videos.

More stories:

- Want to buy a pink cow? Facebook Credits required

- LEGO pirates and the apocalypse this May

- Woman to boss: I need to play Facebook games

- Thor, god of lame

- Intense Facebook game aims for social change

Check out Technolog on Facebook, and on Twitter, follow Athima Chansanchai, who can't – and won't – go down that rabbit hole of Facebook game playing.

```
    Athima Chansanchai
```

ABOUT   CA NOTICE

CONTACT   TERMS OF SERVICE (UPDATED JULY 7, 2023)

HELP   NBC NEWS SITEMAP

CAREERS   CLOSED CAPTIONING

AD CHOICES   ADVERTISE

PRIVACY POLICY   SELECT SHOPPING

YOUR PRIVACY CHOICES   SELECT PERSONAL FINANCE

© 2023 NBC UNIVERSAL

EXHIBIT 4

The Economics of Privacy: An Agenda

Catherine Tucker[*]

June 10, 2023

Abstract

This paper boldly attempts to set forth an agenda of topics that seem important to study in the economics of privacy in the future.

[*]Catherine Tucker is the Sloan Distinguished Professor of Management Science at MIT Sloan School of Management, Cambridge, MA, and Research Associate at the NBER.

Contents

1   The Challenge of Privacy For Economics

The Economics of Privacy is a challenging field in which to be an economist. There are two reasons for this:

The first challenge stems from the definition of privacy is. What is privacy? My favorite definition is 'freedom from unwarranted intrusion.' This definition stems from (Warren and Brandeis, 1890) who defined privacy as the 'right to be left alone'. Warren and Brandeis (1890) were famously inspired to write their influential essay by the rise of gossip columnists capturing photos with the new technology of portable cameras. This is important as I will argue in this essay that our conceptions of privacy, and therefore what is important to study as economists, are inextricably tied up with progress in technology. Concepts of privacy are constantly challenged by new technologies that parse personal information in new and unexpected ways. Therefore unlike a field such as health economics where the definition of what health is - is relatively unchanging - our ideas of what privacy is and should be are in constant flux.

The second challenge stems from our need as economists to at essence conceptualize any question in economics through the lens of a utility function. Farrell (2012) describes the issue very usefully. Typically in the theoretical literature in economics we tend to think about intermediate preferences for privacy - these reflect the anticipation that if we share our data with a firm it can be used potentially for things like price discrimination which harm us. By contrast, the vast majority of the literature outside of economics think about privacy as a right or something where people should just have a fixed intrinsic taste for keeping certain types of information privacy. Indeed, often the descriptions of tastes for privacy outside of economics suggest a distaste for creepiness (Richards and Hartzog, 2015), or a taste for data being only used in the same context (Nissenbaum, 2004). While of course a taste for anything can be included in a utility function, it is unsatisfactory for a discipline that has

3

tried to always model utility functions based on first principles.

2   The Focus of the Economics of Privacy Literature So Far

When trying to write an essay on the economics of privacy, it is important to highlight that this has already been done stupendously well by Professor Alessandro Acquisti of Carnegie Mellon University and coauthors, culminating in an essay published in the Journal of Economics Literature (Acquisti et al., 2016). What is attractive about this conception of the history of privacy is that he defines a variety of decades of schools of thought and how this has progressed over time.

The first wave identified by Acquisti et al. (2016) is that of the Chicago School in the 1970s, led by theorists such as Stigler and Posner. In this literature, privacy was defined as a propensity towards secrecy - and in a world where information is generally beneficial to welfare, these models evaluated how tastes for privacy itself could lead to harm to welfare (Posner, 1978, 1981; Stigler, 1980). Of course the wave of information economics that characterized theory in the 1980s in economics, itself questioned the idea that more information is always beneficial initiated by some of the idea in theories of signaling and information cascades (Spence, 1978; Hirshleifer, 1978).

The second wave identified by Acquisti et al. (2016) is also a theoretical literature but this time led by information economists who were interested in questions of technology. Varian (2002) shifted the question of privacy from being one of simply secrecy in what information is shared with other people, to being one firmly about data. This led to new questions such as what should be secondary use rights associated with data. As such it gave rise to what Acquisti et al. (2016) describe as the third wave of theoretical literature which is interested in questions such as price discrimination (though the use of cookies) (Acquisti and Varian, 2005) and targeting effects in online advertising (Johnson, 2013; Bergemann and Bonatti, 2011, 2015).

The other large shift in the last decade of research has been a proliferation of empirical work in privacy. As described by Goldfarb and Tucker (2012a), much of this work has tried to quantify the effects of privacy regulation on the economy, much of the literature asking questions advertising markets (Goldfarb and Tucker, 2011; Chiou and Tucker, 2012; Johnson et al., 0; Jia et al., 2018; Peukert et al., 2020; Johnson et al., 2022; Godinho de Matos and Adjerid, 2022), though some of the literature also asking about online behavior (Zhao et al., 2021), financial markets (Kim and Wagman, 2015), and health markets (Miller and Tucker, 2009, 2011; Adjerid et al., 2016; Miller and Tucker, 2017).

These few brief paragraphs do not of course do justice to the literature on the economics of privacy. However, it is fair to say that as yet the number of researchers and number of publications are relatively small given its potential importance in the digital economy. Recently recognizing this the NBER, and with support from the Sloan Foundation, has instituted a one-off conference on the economics of privacy and also a PhD tutorial to try and inspire more work in this area. This chapter of the handbook that reflects this work tries to offer some suggestions about how economists might be able to deepen and broaden this current literature.

3   Outstanding Questions

This handbook is aimed at young researchers who are starting off their careers. Therefore it makes sense to focus on some of the big questions that researchers in economics have not yet tackled (or have only tackled in part).

3.1   The Value of Privacy

3.1.1   Measuring Positive Consequences of Privacy Regulation

Much of the empirical wave of research on privacy has focused on the question of how privacy regulation hurts economic outcomes - by restricting advertising effectiveness (Goldfarb and Tucker, 2011; Johnson et al., 0), leading to market concentration (Peukert et al.,

interested firm, what should be done about the spillovers this has and inferences that are created for my family members?

- Often my data is not particularly valuable, however, inferences from it may be (**?**). Let us supposed I liked curly fries on Facebook and researchers were able to infer that this implied I was clever. Do I as the owner of the data also own rights to this inference - or to property rights to that inference belong to the researchers? As an aside, this correlation is based on real-life research (Kosinski et al., 2013).

Therefore, perhaps a way for research in this area to succeed is to study the differences between data where there is a clear property right, and data where there is not. And understand the economic implications of both. This is an area where it seems to be that the talents of theorists would be particularly helpful.

3.2.2   Individual Data Markets

Though it is possible to think of all the ways that property rights being fuzzy when it comes to data as being a potential explanation for why rights of property right approaches to privacy have failed, it is also possible to think of more traditional sources of market failure such as moral hazard and adverse selection also being at play. A useful place to study this is in current efforts to build up individual data markets. There are plenty of firms who have sought to set up businesses which would allow individuals to own their data and trade it for monetary value. For example, firms like `https://www.citizenme.com/`, `https://www.streamlytics.co/` and `https://www.clture.io/` have tried to establish individual data markets along these lies. Firms, like brave offer to pay people for their attention and data.[1]. However, as of yet none of these efforts have thrived.

There is a fledgling literature that tries to understand some of the limitations from a privacy perspective of these markets (Spiekermann et al., 2015). There is also a theoretical

---

[1] `https://brave.com/compare/chrome/earning/`

literature that explores the consequences of these markets not existing (Jones and Tonetti, 2020), being distorted by regulation (Fainmesser et al., 2022) or being plagued by externalities (Ichihashi, 2021). But it seems clear that more papers are needed that tries to study the diffusion of these attempts to create data markets and issues of adverse selection and moral hazard that might intuitively plague attempts to create such markets.

Another explanation that may be worth exploring is also that the ubiquity of data and non-rivalry of data has also hampered the successful monetization of an individual's data.

3.2.3   Competitive Dynamics and Privacy

It is also useful to think about privacy regulation or tastes for privacy might affect market dynamics and competition as a whole. Early theoretical work such as Campbell et al. (2015) sketched out theoretical reasons why privacy regulation might lead to concentration. Since then, a variety of work has appeared to confirm this (Miller and Tucker, 2014; Peukert et al., 2020; Johnson et al., 2022; Marthews and Tucker, 2019a). However, this doesn't mean that the topic is closed to new research. Instead, it means it is time to broaden the number of contexts that such studies are conducted in - for example extending the insights to less studied industries where privacy matters - such as educational technology.

It is also possible to take this type of research and ask questions that illuminate competitive strategy. For example, it would be useful to study where an differentiation on the privacy dimension is a successful strategy, or whether as appears to have been the case so far, that it ultimately a niche strategy. What types of privacy regulation might be most successful and curtailing the market power of firms, where their market power stems from data? For example, in the fledgling genetic and genomic health industry can privacy regulations be designed in a way which will not cement market power for an incumbent?

EXHIBIT 5

THE ROLE OF THE STATE   ANTITRUST AND COMPETITION   THE DIGITAL ECONOMY   BIG TECH   NEWS
RESEARCH

Giving Away Our Data for Free is a Market Failure

BY NICHOLAS ECONOMIDES, IOANNIS LIANOS   *February 1, 2021*

Photo by Yuri Samoilov via Flickr. (CC BY 2.0)

By convincing users to give away their data for free, digital platforms have caused a market failure. This failure benefits them and harms us, their users. A recent paper explores different ways to fix this.

Digital platforms, such as Google and Facebook, voraciously collect personal information from their users. This information spans many aspects of users' lives, such as location, interests, activities, political opinions, and social interactions. Personal information is collected without compensation to the user, other than providing free internet search by Google or free social networking services by Facebook. Users opt-in by default, providing their personal information to digital

platforms that impose a take-it-or-leave-it requirement contract.

There are clearly two markets here: the "primary" market for digital services:

(A) search in the case of Google, social networking service in the case of Facebook; and

(B) the market for the sale of personal information. In a competitive world, these markets would function separately from each other.

Under competition, in market A, prices for internet search or for social network service would be determined by competitive conditions. In market B, users would be able to sell their personal information if they so wished but could also choose not to do so.

The ability of the digital platforms to drive users to accept their take-it-or-leave-it opt-in contract to provide personal data at zero price is a direct result of their market dominance. The collection of data in this fashion enhances the dominant position of the platforms in their respective primary markets and reinforces their ability to collect even more personal data.

In the competitive world, users by default would opt-out from the market for sale of personal information. If a user wanted to enter this market, she would opt-in, sell her personal information and get compensated by the digital platform. Compensation would depend on the value of the information of a particular user to the platform. A user would accept the offer and participate in market B if the monetary compensation exceeds her value of the loss of privacy implied by the transaction.

Users vary widely on the value they place on privacy and in the value of their personal information to the platforms. Therefore, in a competitive market for personal information, some users would participate, and

others would not. Transaction prices for the sale of personal information would also vary and likely be individually negotiated between the platform and the user.

In contrast, at present we observe a *market failure* where all transactions occur at the same zero price, and some transactions that would have occurred under competition do not occur. The market failure is a direct result of the imposition of the take-it-or-leave-it contract by dominant digital platforms and the default opt-in.

> ## "The market failure is a direct result of the imposition of the take-it-or-leave-it contract by dominant digital platforms and the default opt-in."

A digital platform can benefit from this market failure in at least three ways: First, it collects and appropriates data directly from the user and combines it with other data it buys from third parties, such as health or credit card transactions data, as well as public census income and race data, to create a profile that is highly desirable to an advertiser or a political campaign and can be sold at a high price. The appropriation of personal information improves the quality of profiles sold to advertisers and enhances the digital platform's market position in advertising.

Second, data has network effects that improve the quality of the primary services of the platforms. Thus, the appropriation of more personal information enhances the dominance of Google and Facebook in their respective primary markets for internet search and social networking.

Third, the platform does not pay for personal data except by a payment

in kind with a service that has a negligible incremental cost. Thus, the platform always benefits from the appropriation of data in exchange for its service, even when the data has small benefits in increasing the quality of the user profile sold to advertisers or small network effects in other services sold by the platform. Most importantly, the platform avoids monetary payments that would be the norm in the but for world and enhances its dominance in its primary market.

There are several harms to users and competition resulting from the requirement contract and the market failure. First, the market failure harms users who would be willing to pay for the primary service of the platform but are not willing to sell their personal information to the platform at zero price and therefore presently do not participate in market B. Second, some of the users participating in the market at zero price would be compensated at a positive price under competition. Third, the market failure, through the acquisition of data, enhances the dominant position of digital platforms in their respective primary market. Fourth, the enhancement of the dominant position in the primary market allows platforms to make more users accept the requirement contract, thereby increasing the group of users who accept the requirement contract and the harm to them.

Users are also harmed because of asymmetric information. They do not know the value of their data to advertisers and/or the digital platforms that harvest them as they have no information of its value in digital platform's transactions with advertisers and infomediaries on the other side of the platform. Additionally, users may underestimate the value of their privacy or this value may increase over time in the perception of the user.

There is also the risk that the mode of competition and innovation in the industry will be frozen at a suboptimal equilibrium from the perspective of data protection since the implemented data extraction

strategies may generate superior levels of profitability for the platforms that manage to harvest most of the personal data, leading to increasing returns to scale and learning-by-doing, resulting in long term dominance.

Remedies that fully reverse the anticompetitive effects are difficult to find because of the multitude of the effects and the long-term dominance they cemented.

A required first remedy is to make "opt-out" the default regime in the collection of personal information, and sellers would opt-in if they so wish. The EU has adopted the opt-out regime in the GDPR based on an approach of "rights" rather than antitrust. But this is hardly enough because of the asymmetrical bargaining power between the user and a dominant digital platform that can act as a monopsonist utilizing significant user-specific information.

> ## "A required first remedy is to make "opt-out" the default regime in the collection of personal information, and sellers would opt-in if they so wish."

Structural remedies could include (i) a horizontal break-up of the platform (for example Google to Google1, Google2, etc. that start as identical companies) to enhance inter-platform competition; (ii) a rollback of previous mergers, for example with Facebook spinning off Instagram and WhatsApp; and/or (iii) vertical separation by prohibiting the platform to do business in vertically related markets, for example Google spinning off its online travel agency business.

Separation need not be structural; it may be a data separation policy or a data-use break-up. It need not focus only on the dominant platform

and the companies controlled by it but may also expand to a partial break up of their third-party ecosystem. Some "light-touch" separation may be achieved by policies that require digital platforms not to use personal data that has been harvested from members of their ecosystems unless they have the explicit consent of these members for the envisaged use. This may break the continuity of the data resources the platform commands as part of the economic entities it controls from the data resources that are provided to it by its third-party ecosystem. "Data separation" policies may be implemented more easily than structural break-ups and could serve to reduce the data advantage that some platforms have in view of the time people spend online and on/ in/ within each platform's ecosystem.

Another remedy could involve platforms ensuring that even after acquisition, policies at acquired companies that are more protective to privacy of personal data remain in place and are not replaced by the less privacy-oriented policies.

Platforms could switch to a regime of paying users for their data as we outlined earlier, which could lead to the emergence of a non-exclusive licensing market for user data when users opt-in to sharing their data with specific platforms. This would enable users to port their data to the platforms that offer them higher levels of return and better conditions in terms of valuing their privacy.

Non-exclusive licensing could be instituted through a licensing agency that would collect the data from each user and distribute it to platforms. The user would be paid the combined sum of all the amounts that the relevant companies are willing to pay. To determine the "fair" value, one would need to refer to the value of the data in a competitive market. However, this is not currently possible as there is no competitive market, and network effects ensure that a competitive market will not have egalitarian market shares. Digital platforms are

likely to exercise their buying power, resulting in downward pricing pressure in the market for personal data depriving the users from a portion of their revenues. A possible solution would be for competition authorities to facilitate users collectively bargaining.

Data portability, providing users with the ability to export their social graph or their search history, constitutes another competition law remedy tackling the problem of the absence of a market for personal data. This ability ensures the free flow of personal data and ensures that users are not captive to a limited number of digital platforms.

The constitution of a "data commons" may also facilitate new entry into data-related markets and, therefore, should be promoted. This may be done by, for instance, enabling the diffusion of data that has been harvested by government bodies. Another option would be to promote the development of "data clubs" that operate on an open, non-exclusive basis and different companies to pool and share data, again respecting high privacy standards. Such data clubs would have to be properly scrutinized to prevent them from serving as facilitators for cartel activity limiting the protection of privacy.

Interoperability remedies may also help to intensify inter-platform competition, thus also contributing to a better protection of privacy-related competition. For instance, as a remedy, Facebook could change from a closed to an open communication network by adopting an open API for user messages, chats, posts, and other communications. This would enable its users to send messages to users of other social networks and could unlock privacy-related competition between Facebook and other social networks, by eroding the number and identity of users' barrier to entry of Facebook. This barrier may lock in users who value their privacy but have no alternative competitive platform to switch to while preserving the possibility of communicating with their existing social network. Similarly, Google could open APIs

that would allow users to submit queries simultaneously in multiple browsers as was the case in the early days of the Internet.

We discuss these issues in more detail at Nicholas Economides and Ioannis Lianos—Restrictions on Privacy and Exploitation in the Digital Economy: A Market Failure Perspective, forthcoming in the Journal of Competition Law and Economics; and Nicholas Economides and Ioannis Lianos—Antitrust and Restrictions on Privacy in the Digital Economy, Concurrences Review No. 2-2020, pp. 22-30, May 2020.

No related posts.

TAGS   *Competition*   *data*   *Digital platforms*   *Facebook*

Previous article   Next article

Should Antitrust Promote Political Liberty? A Stigler Center Webinar Features Fukuyama, McCarty, Teachout, and Nylen   **EU Claims Court Errors in Bid to Overturn $15.7 Billion Apple Tax Judgment**

LATEST NEWS

The Market for Markets Is Captured

The Macroeconomic Implications of Falling Real Estate Prices

Evaluating Concerns of Collapsing Commercial Real Estate Prices

Responses to Populism Require
Understanding Why Voters Lose
Faith in Experts

Fixing Platform Monopoly in the
Google Search Case

Brazil Demonstrates the Challenge
of Balancing Growth and
Sustainability

Panic-driven Bank Runs and Public
Communication

Do Wealth Taxes Significantly Curb
Wealth Inequality?

Merged Firms Offer Less Product
Variety

Revising Guideline 6 With Evidence
To Establish a Structural Inference
for Input Foreclosure

No related posts.

ProMarket is dedicated to discussing how competition tends to be subverted by special interests. The posts represent the opinions of their writers, not necessarily those of the University of Chicago, the Booth School of Business, or its faculty. For more information, please visit ProMarket Policy.

f   🐦   ▶

ABOUT US

MASTHEAD AND CONTACTS

ABOUT THIS PUBLICATION

TERMS AND CONDITIONS

CATEGORIES

WHAT WE ARE READING

ANTITRUST AND COMPETITION

NEWS

REGULATORY CAPTURE

COMMENTARY

RESEARCH

EXHIBIT 6

Practitioner's Corner

Justin McCrary* and Daniel L. Rubinfeld

Measuring Benchmark Damages in Antitrust Litigation

Abstract: We compare the two dominant approaches to estimation of benchmark damages in antitrust litigation, the forecasting approach and the dummy variable approach. We give conditions under which the two approaches are equivalent and present the results of a small simulation study.

Keywords: antitrust; damages estimation; law and economics.

*Corresponding author: Justin McCrary, Professor of Law, U.C. Berkeley; and Faculty Research Associate, NBER,
E-mail: jmccrary@law.berkeley.edu
Daniel L. Rubinfeld: Robert L. Bridges Professor of Law and Professor of Economics Emeritus, U.C. Berkeley; Professor of Law, NYU; and Faculty Research Associate, NBER

1 Introduction

The quantitative evaluation of monetary damages from alleged antitrust violations occupies a central place in antitrust litigation. The two most common approaches to evaluating damages involve the use of *yardsticks* and *benchmarks*.[1] In a typical yardstick approach, one compares prices during the period in which the antitrust violation is believed to have had an effect (the "impact period") to prices in other markets that are deemed to be reasonably comparable to the market at issue. In contrast, the benchmark approach evaluates prices only in the market at issue, comparing prices in the impact period to available prices before and/or after the alleged period of impact (the "control period").

In this paper, we offer a detailed evaluation of the benchmark approach to damages. We have found the benchmark approach to be the most commonly used damages methodology. To focus the analysis, we assume that the antitrust violation at issue involves price fixing. We also assume that the appropriate legal remedy involves *overcharges* rather than *lost profits*.[2] Our particular focus

is a comparison of the forecasting and dummy variable approaches, which we define in Section 3. Our analysis underscores that these competing approaches to computing benchmark damage estimates often yield similar estimates, despite seemingly different implementation schemes.

We are not the first to consider the advantages and disadvantages of each of these methodologies.[3] However, we believe many of the results comparing the forecasting and dummy variable approaches, while straightforward, are underappreciated. In order to focus on the central methodological issues, we begin in Section 2 by describing the basic regression framework and defining the object of interest. In Section 3, we discuss alternative versions of the dummy variable approach, offering in the process a suggestion as to how to compare the various methodologies. We also describe the forecasting approach and compare it to the dummy variable approach. Section 4 presents three propositions that directly compare the dummy variable and forecasting approaches. The propositions tend to support the use of the dummy variable approach over the forecasting approach. However, there are particular advantages associated with the forecasting approach, and these are discussed in Section 5. In Section 6, we return to the dummy variable approach, discussing some important model specification issues. In Section 7, we offer an example that illustrates the differences between the various approaches. Section 8 concludes.

2 The Basic Model

Let Y_t denote the price of the product in question, X_t a vector of exogenous covariates (e.g., demand and cost variables), and D_t a dummy variable indicating the period of the alleged conspiracy, i.e., the impact or conspiracy period.

---

1 Alternative approaches involve variations on the yardstick approach, such as a comparison of rates of return and/or profit margins across industries.
2 For a broad discussion of these alternative measures, see Hovenkamp [2005, section 17.5(a)].

3 See, for example, Salkever (1976), Fisher (1980), Rubinfeld and Steiner (1983), Rubinfeld (1985, 2008), and Higgins and Johnson (2003). See especially White, Marshall, and Kennedy (2006); those authors strongly prefer the forecasting approach and are highly critical of the dummy-variable approach.

EXHIBIT 7

University of Pennsylvania Carey Law School

Penn Carey Law: Legal Scholarship Repository

All Faculty Scholarship   Faculty Works

3-1-2011

A Primer on Antitrust Damages

Herbert J. Hovenkamp
University of Pennsylvania Carey Law School

Author ORCID Identifier:

iD Herbert Hovenkamp 0000-0002-4583-5162

Follow this and additional works at: https://scholarship.law.upenn.edu/faculty_scholarship

Part of the Antitrust and Trade Regulation Commons, Economic Policy Commons, Economic Theory Commons, Industrial Organization Commons, Law and Economics Commons, Legal Remedies Commons, Litigation Commons, and the Policy Design, Analysis, and Evaluation Commons

A PRIMER ON ANTITRUST DAMAGES
(revised)

Herbert Hovenkamp[*]

Introduction: Antitrust Damages Actions and Social Welfare

The Role of Efficiency in Damages Theory

The marriage between economics and federal antitrust policy becomes rocky when it reaches the law of damages. With the exception of market definition issues, most of the economics applied in substantive antitrust analysis is conceptual and written by academics who were not contemplating litigation. By contrast, an economically sophisticated law of damages requires empirical studies to be made within the context of litigation and with specific application to the facts placed before the court. For the economist, empirical studies invariably mean statistics, regression analysis and other forms of higher mathematics. The result can be a nightmare for the judge, who must ultimately instruct the jury in such a way that their decision will not be arbitrary.

Certain complexities in the law of damages limit the contribution of theoretical economics. The economics revolution in antitrust has been concerned chiefly with the "quality" of antitrust injury. It has helped policy makers determine when certain practices, such as vertical integration, are beneficial to society and when they are harmful; or alternatively, whether the plaintiff is complaining about anticompetitiveness or efficiency. But the law of damages has the much more difficult task of *quantifying* injury; the difference between saying that a certain practice is harmful and quantifying the amount of harm can be significant.

Most of the law continues to be based on concepts of justice and compensation that are inconsistent with any notion that the purpose of antitrust enforcement (including private enforcement) is to deter conduct only to the extent that it is inefficient. But the economics revolution in the substantive law of antitrust cannot be ignored in the law of damages, or nearly everything given by one hand will be taken back by the other. The availability and amount of damages determines the amount of antitrust enforcement that exists. More importantly, it affects the cost-benefit calculus any firm undertakes when it considers whether to undertake a risky, probably efficient practice whose legality is uncertain and which is likely to injure certain competitors. The great majority of antitrust cases are filed by private plaintiffs,[1] and most of these include a damage claim. As a result, most antitrust enforcement comes from private parties whose personal motive is not optimal efficiency or the maximization of consumer wealth, but rather their own economic gain.

---

[*] Ben V. & Dorothy Willie Professor of Law, University of Iowa.

[1] See the data cited in Herbert Hovenkamp, Federal Antitrust Policy: the Law of Competition and its Practices § 16.1 n.7 (4th ed. 2011) (forthcoming).

dictated by the intersection of the monopolist's marginal cost and marginal revenue curves. However, assuming that a monopolist was alleged to have committed two or three different exclusionary practices—perhaps predatory pricing, vexatious litigation, and patent fraud—it may be impossible to determine how to assign part of the monopolist's price increase to the patent fraud, part to the vexatious litigation, etc. But this division would be essential to damages recovery if one alleged practice were found to be illegal while the others were not.

The great majority of consumer actions for overcharge damages allege price fixing, not illegal monopolization. Cartel members, unlike monopolists, enjoy no presumption that they already had market power before the illegal act was committed. As a result, the damages rule for price fixing cases is somewhat clearer: the plaintiff is entitled to the difference between the "competitive" price and the cartel price, multiplied by the number of units purchased, multiplied by three.

Methods of Measurement: "Yardstick" and "Before–and–After"

Assuming that the cartel price less marginal cost in a competitive market is the correct determinant of overcharge damages, courts would be unable to quantify damages very precisely. They usually cannot measure marginal cost directly. But courts have developed two surrogates for the competitive price. Under the "yardstick" approach the price that prevails in a different market, similar to the cartelized market but presumed to be competitive, becomes the surrogate for the competitive price. Under the "before-and-after" method the price that prevailed in the cartelized market before the cartel came into existence or after it fell apart is presumed to be the competitive price. These two approaches have been used by courts not only to estimate overcharges but also to estimate lost profits in competitor antitrust suits.

The courts are currently divided on the question whether the "yardstick" and "before-and-

---

The wrongful conduct rule indicates that a purchaser can recover for an overcharge paid to a violator of § 2 only to the extent that the price he paid exceeds that which would have been charged in the absence of anticompetitive action. An intermediate step in the analysis may be an attempt to estimate what the monopolist's market share would likely have been but for the illegitimate conduct; it would then be possible to gauge approximately what price the defendant would have been able to charge with that degree of market control.

603 F.2d at 298. See also Hanover Shoe, Inc. v. United Shoe Mach. Corp., 392 U.S. 481, 88 S.Ct. 2224, rehearing denied, 393 U.S. 901, 89 S.Ct. 64 (1968), holding that a monopolist in shoe machinery violated the Sherman Act by refusing to sell its machines, but offering them only under lease. The plaintiff was awarded the "excess of leasing costs over what it would have cost to own the same machines had they been available for purchase." Presumably, however, the defendant's profit-maximizing price was the same regardless of whether it sold the machines or leased them. In that case Hanover's damages would be zero.

after" methodologies are the only way that plaintiffs can prove antitrust damages. The question involves mainly exclusionary practices.

Yardstick Method

The yardstick method of estimating damages was approved by the Supreme Court in 1946, in Bigelow v. RKO Radio Pictures, Inc.[22] Under the yardstick method the plaintiff identifies some geographic market that is as similar as possible to the cartelized market, but for the conspiracy. Obviously, the yardstick method has certain inherent limitations. If the conspiracy is worldwide, there will be no other terrestrial geographic market with which the cartelized market can be compared. Even if the conspiracy is nationwide, the problems of comparison are substantial. Different countries tax and subsidize businesses in different ways and, as a result, firms in different countries can face very different costs. Experts might also select a different product market rather than a different geographic market as a "yardstick." However, that methodology generally works only in exclusionary practice cases.

The ideal conspiracy for the yardstick approach is a local cartel where a nearby market can be found which has the same basic cost structure. Adjustments must probably be made for differences in taxes and regulatory fees, costs of transportation, and different wage and salary rates. However, if these differences can be isolated and quantified, an expert economist or accountant should be able to produce a "reconstructed" price that would have prevailed in the cartelized market if it had the same level of competition as exists in the yardstick market.

A good illustration of the method in practice is Greenhaw v. Lubbock County Beverage Ass'n, which involved a price fixing conspiracy among liquor retailers in Lubbock County, Texas.[23] In estimating damages the plaintiff's expert compared prices in Lubbock County during

---

[22] 327 U.S. 251, 66 S.Ct. 574, rehearing denied, 327 U.S. 817, 66 S.Ct. 815 (1946). *Bigelow* applied the yardstick method not to estimation of monopoly overcharge, but to estimation of lost profits.

[23] 721 F.2d 1019, 1026 (5th Cir.1983), rehearing denied, 726 F.2d 752 (5th Cir.1984). See also National Farmers' Org. v. Associated Milk Producers, 850 F.2d 1286, 1294–1298 (8th Cir.1988), cert. denied, 489 U.S. 1081, 109 S.Ct. 1535 (1989) (permitting different geographic area to be used as a yardstick, in spite of numerous differences, but no alternative method seemed any better); Metrix Warehouse, Inc. v. Daimler–Benz Aktiengesellschaft, 828 F.2d 1033, 1044 (4th Cir.1987), cert. denied, 486 U.S. 1017, 108 S.Ct. 1753 (1988) (requiring "reasonable comparability" between plaintiff's market and yardstick market); Home Placement Serv. v. Providence Journal Co., 819 F.2d 1199, 1205–1206 (1st Cir.1987) (same). See also Piggly Wiggly Clarksville, Inc. v. Interstate Brands Corp., 100 Fed.Appx. 296, 2004 WL 1245275 (5th Cir.2004) (faulting expert's yardstick damages model for including variables such as "negotiating ability" that were too difficult to quantify: "We question whether these factors can be included in a general formula, since a variable cannot be included in a regression formula unless a numerical value can be assigned to it.").

has not caused any anticompetitive injury at all at the time of litigation. In such cases injunctive relief might be appropriate: the private plaintiff might wish to protect itself from threatened anticompetitive conduct. However, damages based on anticompetitive injury will not be owing until anticompetitive injury has actually occurred.[5]

The second problem with private damages actions for exclusionary practices is more pervasive, and is a function of severe limitations on the judicial fact-finding process. By definition, anticompetitive acts cause *public* injuries. Competition is that state of affairs that maximizes social wealth, and any deviation from competition impoverishes society as a whole. But private plaintiffs do not sue in order to vindicate public injuries. They wish to vindicate private injuries—their own. Unfortunately, both efficiency-creating and efficiency-destroying practices can cause substantial private injuries. The problem is particularly acute when the plaintiff and defendant are competitors, for nothing succeeds like efficiency in injuring one's competitors.[6]

If one principle can be said to underlie the "antitrust injury" doctrine developed in *Brunswick*, it is that a plaintiff should be able to recover damages only if its own private injury and injury to the public coincide in some way. Many efficiency-creating practices are of marginal legality at the time they are undertaken. A rule that permitted a plaintiff to recover for all injuries once an antitrust violation is shown to have occurred could yield outrageous overdeterrence. That in turn could encourage firms to avoid efficient, aggressive conduct that might subsequently be characterized as an antitrust violation.

Damages for Lost Sales and Market Share

In most cases involving exclusionary practices the plaintiff seeks compensation for what is generally characterized as "lost profits."[7]   Such actions include competitor lawsuits alleging illegal monopolization, attempt to monopolize or predatory pricing, tying arrangements or exclusive

---

[5] See Phillip E. Areeda, Antitrust Violations Without Damage Recoveries, 89 Harv.L.Rev. 1127 (1976). See also Blue Cross and Blue Shield United of Wisconsin v. Marshfield Clinic, 152 F.3d 588, 591 (7th Cir.1998), cert. denied, 525 U.S. 1071, 119 S.Ct. 804 (1999) (awarding an injunction when plaintiff could show causation but not damages because there was no way of measuring the latter).

[6] See Herbert Hovenkamp, Merger Actions for Damages, 35 Hastings L.J. (1984).

[7] For example, H.J., Inc. v. ITT, 867 F.2d 1531, 1549 (8th Cir.1989) ("the present value of profits lost as a result of [the defendant's] improper actions"); Sciambra v. Graham News, 841 F.2d 651, 657 (5th Cir.1988) (lost profits, or going concern value as an alternative for firms excluded entirely from the market). See also Los Angeles Memorial Coliseum Commission v. National Football League, 791 F.2d 1356, 1367 (9th Cir.1986) ("A plaintiff's antitrust damages are to be calculated 'by a comparison of profits, price and values as affected by the conspiracy, with what they would have been in its absence under freely competitive conditions.' ").

dealing, illegal mergers, concerted refusals to deal, and violations of the Robinson–Patman Act. Also included are actions brought by firms who deal with or formerly dealt with the defendant, such as terminated distributors or retailers. The latter lawsuits often allege illegal vertical price or nonprice restraints. However, they might also allege any one of the antitrust violations listed above.

Once standing, violation, causation and antitrust injury have been established,[8] computation of damages in such cases is generally the same regardless of the nature of the substantive violation. However, the nature of the violation and the pre-litigation relationship between the defendant and plaintiff will be a factor in the court's decision about how much of the plaintiff's injury was caused by the defendant's violation and how much resulted from the plaintiff's own actions or from other causes.

Actions for "lost profits," or loss of the opportunity to do business, are generally of three kinds: 1) actions in which the plaintiff continues to be a going concern but alleges that it lost sales or market share as a result of the defendant's violation, or that the antitrust violation increased its cost of doing business; 2) actions in which the plaintiff alleges that it was put out of business by the violation;[9] 3) actions in which the plaintiff alleges that the violation precluded it from ever entering business in the first place.

In all cases the principle underlying the computation of damages is that the plaintiff is entitled to be put in a position, ignoring trebling, that it would have been in had the anticompetitive conduct not occurred. This generally means that the court must entertain certain assumptions that cannot be established with anything approaching certainty—for example, that the plaintiff's business would have continued to do as well as it did before the violation occurred.

When the plaintiff was established in business before the violation occurred and remains in business thereafter, courts generally estimate the plaintiff's loss by one of three methods: the "before-and-after" method, the "yardstick" method, or the "market share" method. The first two of these methods are also used to estimate overcharge damages.

Courts currently disagree about whether the "yardstick" and "before-and-after" methodologies are the exclusive means by which a plaintiff can prove its damages. The trend is to require that damages be measured by one of these methodologies. For example, in *Marshfield Clinic* the Seventh Circuit held that a plaintiff who could not prove damages under either methodology was not entitled to collect them.[10] Some courts have suggested that alternative

---

[8] See Ch. 16.
[9] For example, Sciambra v. Graham News Co., 841 F.2d 651, 657 (5th Cir.1988) (terminated dealer).

[10] Blue Cross and Blue Shield United of Wisconsin v. Marshfield Clinic, 152 F.3d 588, 592 (7th Cir.1998), cert. Denied, 525 U.S. 1071, 119 S.Ct. 804 (1999).

methodologies may be acceptable when the data for using either of the generally accepted methodologies are unavailable.[11] The *Conwood* decision in the Sixth Circuit went much further, permitting damages to be proven by a novel and untested methodology even when the data were available for both the "yardstick" and "before-and-after" tests.[12] As discussed in § 16.8c, not only was the methodology novel, it was also based on faulty economic reasoning and ignored many market factors unrelated to the defendant's anticompetitive conduct that had a significant impact on the plaintiff's growth. *Conwood* makes a good case for extremely harsh scrutiny of novel damages methodologies, particularly when the data for the traditional methodologies are readily available, as they were in that case.

Before–and–After Method

In the "before-and-after" method the court looks at the plaintiff's business before the violation occurred, during the violation period, and after the violation ended, and estimates the amount that the violation reduced the plaintiff's profits. In its simplest form the theory looks at the plaintiff's net profits before and after the injury period, discounts all dollars to their present value, and gives the plaintiff a sum that, before trebling, will bring its earnings during the injury period up to the same average level as its earnings during the noninjury periods.[13] For example, suppose that the plaintiff establishes that the defendant engaged in predatory pricing during the years 1995–1998. The plaintiff's profits for the period 1992–1999, in constant dollars, were as follows:

1992: $60,000

1993: $50,000

---

[11] State of New York v. Julius Nasso Concrete, 202 F.3d 82, 88–89 (2d Cir.2000) ("dearth of market information" may lighten plaintiff's evidentiary burden). Accord Eleven Line v. North Tex. State Soccer Ass'n, Inc., 213 F.3d 198, 207 (5th Cir.2000).

[12] Conwood Co. v. United States Tobacco Co., 290 F.3d 768, 784 (6th Cir.2002), cert. denied, 537 U.S. 1148, 123 S.Ct. 876 (2003). Conventional "yardstick" and "before and after" methodologies showed zero damages; the expert's alternative methodology ended up with an award of actually damages of $350 million, or more than one billion dollars after trebling.

[13] See Story Parchment Co. v. Paterson Parchment Paper Co., 282 U.S. 555, 566, 51 S.Ct. 248, 251–52 (1931); Bigelow v. RKO Radio Pictures, 327 U.S. 251, 266, 66 S.Ct. 574, 580 (1946); 2 Antitrust Law ¶ 397 (3d ed. 2007).

1994: $60,000

1995: $35,000   (violation year)

1996: $20,000   (violation year)

1997:   ($5,000)   (violation year)

1998: $10,000   (violation year)

1999: $50,000

The plaintiff's average profits during the nonpredatory years were $55,000. Before trebling, the plaintiff is entitled to an amount that will bring its profits up to $55,000 for each of the predatory years—$20,000 for 1995, $35,000 for 1996, $60,000 for 1997, and $45,000 for 1998. The plaintiff's damages will be $160,000 x 3, or $480,000.[14]

Obviously, the above example ignores dozens of contingencies that could affect profitability in any market. At one time courts were generally of the view that the highly contingent nature of the before-and-after approach rendered such damages estimates far too speculative. In Bigelow v. RKO Radio Pictures,[15] however, the Supreme Court held that any imprecision in the calculation of damages was the result of the defendant's wrongful conduct; therefore the defendant should bear the risk of any uncertainty of measurement.

If the contingencies affecting the plaintiff's profitability are random or unknown, the before-and-after method is as likely to understate as to overstate the plaintiff's loss. As a result, simple use of the method without consideration of truly random or completely unknown contingencies does not really transfer the risk of uncertainty to the defendant but rests it equally on both parties. However, the advantage is clearly with the plaintiff if the plaintiff is permitted to have every plausible assumption respecting a nonrandom element in its favor.

Information about the plaintiff's performance during the noninjury years may force some adjustment of the before-and-after computation. For example, if the plaintiff's profits and market share were decreasing steadily even before the violation, then a mere average of the plaintiff's performance in a half-dozen pre-violation years will overstate the damages. The reverse might be

---

[14] For one application, see Blanton v. Mobil Oil Corp., 721 F.2d 1207, 1216 (9th Cir.1983), cert. denied, 471 U.S. 1007, 105 S.Ct. 1874 (1985). The court approved the jury determination, notwithstanding the possibility that some of the losses could have resulted from things other than the antitrust violation.

[15] 327 U.S. 251, 264, 66 S.Ct. 574, 579 (1946).

true if the plaintiff's profits and market share had been steadily increasing.[16]   Likewise, if a larger buyer or seller entered or exited the market during the injury period, or if the demand curve for the product shifted dramatically during the injury period, these adjustments must be taken into account.[17] For example, if a slide rule manufacturer was injured by a competitor's antitrust violation at the same time that electronic calculators were introduced into the retail market, it would be inappropriate to attribute the entire decline in the plaintiff's sales to the antitrust violation.[18]

Accommodation of all requisite factors has made the before-and-after method complex, and its use often requires higher forms of mathematics such as multiple and nonlinear regression analysis and—most importantly—a qualified economic or statistical expert.

The extreme complexities of lost profits studies using the before-and-after method can be seen in a series of cases alleging monopolization and predatory pricing against American Telephone and Telegraph Co.[19] In *Litton* the damages study took two years and covered a giant host of variables. It also made a number of assumptions that the defendant challenged unsuccessfully—such as, that the plaintiff would have received its operating certificate promptly absent the defendant's objections, that the plaintiff would have invested far more in research and development than it had actually planned on investing, that the growth rate of AT & T's competitors in the terminal equipment market would be steadily upward, and that the plaintiff

[16] However, businesses that are initially successful frequently exhibit a profit or market share growth rate during the early years that they will not sustain indefinitely. For example, see Volasco Prods. Co. v. Lloyd A. Fry Roofing Co., 308 F.2d 383, 391 (6th Cir.1962), cert. denied, 372 U.S. 907, 83 S.Ct. 721 (1963), where the court refused to believe that the plaintiff's business would have continued indefinitely to grow at a rate of 247% per year.

[17] See Isaksen v. Vermont Castings, Inc., 825 F.2d 1158, 1165 (7th Cir.1987), cert. denied, 486 U.S. 1005, 108 S.Ct. 1728 (1988) (before-and-after method overstated damages when overall market demand for woodstoves diminished during violation period, for reasons having nothing to do with the violation. "All [the plaintiff] did to prove damages was to compare his average profits for several years before and several years during the period of unlawful activity. *Post hoc ergo propter hoc* is not a valid methodology of damage calculation, especially when it is apparent that other causal factors are at work.") See also Richard C. Hoyt, Dale C. Dahl & Stuart D. Gibson, Comprehensive Models for Assessing Lost Profits to Antitrust Plaintiffs, 60 Minn.L.Rev. 1233, 1236 (1976).

[18] In such a case the market share method would be more appropriate. The relevant question is not how much the plaintiff's gross sales declined, but how much its share of the slide rule market declined.

[19] Litton System, Inc. v. AT & T, 700 F.2d 785 (2d Cir.1983), cert. denied, 464 U.S. 1073, 104 S.Ct. 984 (1984); see also MCI Communications Corp. v. AT & T Co., 708 F.2d 1081 (7th Cir.), cert. denied, 464 U.S. 891, 104 S.Ct. 234 (1983).

would continue to face the same costs that the defendant faced.[20]

However, an equally complex lost profits study by the Southern Pacific Communications Co., which operated long-distance microwave systems that competed with AT & T's long distance service, foundered because it failed to account for the growing market share of satellite communication, and the increasing tendency of large purchasers of long distance service to build their own internal microwave systems. Furthermore, the study appeared to project a rate of growth that exceeded the plaintiff's capacity.[21]

Yardstick Method

The "yardstick" method of estimating lost profits can sometimes simplify the court's calculations, although it can be used only in limited situations. Under the yardstick approach the plaintiff attempts to identify a market or firm similar to the plaintiff in all respects but for the impact of the antitrust violation. For example, in *Bigelow*, the plaintiff compared its own revenue during the injury period with that earned by a comparable theater operated by one of the defendants.[22] In such circumstances, *if* the markets of the two firms are identical, and *if* the plaintiff's firm and the firm used for comparison stand in the same relative position in those markets, offer the same product mix, have comparable managements and are comparable in all other respects, then the fact finder may infer that the two would have had comparable revenues or profits but for the violation.

The above statement of the "yardstick" methodology gives some indication of its inherent weaknesses. To the extent that either the markets or firms being compared are dissimilar, the yardstick theory will not produce a trustworthy estimate of what the plaintiff would have earned but for the defendant's conduct. The method therefore works best in markets that are both local

---

[20] *Litton*, 700 F.2d at 822–24.

[21] Southern Pacific Communications Co. v. AT & T Co., 556 F.Supp. 825, 1060 (D.D.C.1982), affirmed, 740 F.2d 1011 (D.C.Cir.1984). Other courts have also been critical of speculative damage assumptions. See McGlinchy v. Shell Chem. Co., 845 F.2d 802, 806–807 (9th Cir.1988) (rejecting expert's damage study for not carefully examining underlying market conditions, and which projected that growth of sales would exceed 40% annually while expenses would remain constant); Olympia Equip. Leasing Co. v. Western Union Tel. Co., 797 F.2d 370, 382–383 (7th Cir.1986), cert. denied, 480 U.S. 934, 107 S.Ct. 1574 (1987) (severely criticizing expert damage study as nothing more than advocacy); Metrix Warehouse, Inc. v. Daimler–Benz Aktiengesellschaft, 828 F.2d 1033, 1044 (4th Cir.1987), cert. denied, 486 U.S. 1017, 108 S.Ct. 1753 (1988) (expert damages study failed to separate out losses caused by lawful conduct).

[22] Note __. See Robert D. Blair & Amanda Kay Esquibel, An Econometric Approach to Constructing a Yardstick Model of Damages in Lost Profit Cases, 72 Den. Univ. L. Rev. 113 (1994).